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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/615,294	07/13/2000	Stuart J. Knowles	A-68944/ESW	4777

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EXAMINER

TUGBANG, ANTHONY D

ART UNIT	PAPER NUMBER
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3729

DATE MAILED: 05/30/2002

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Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Applicati n No.

09/615,294

Applicant(s)

KNOWLES ET AL.

Examiner

Dexter Tugbang

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-- Th MAILING DATE of this communication app ars on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 22 January 2002.
- 2a) ☒ This action is FINAL. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disp sition of Claims

- 4) ☒ Claim(s) 1-18 is/are pending in the application.
- 4a) Of the above claim(s) 1-3 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 4-18 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____.
- 4) ☐ Interview Summary (PTO-413) Paper No(s). _____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____.

DETAILED ACTION

Response to Amendment

1. Applicants' amendment (Paper No. 6) filed on 1/22/02 has been fully considered and made of record.

Election/Restrictions

2. Claims 1-3 stand as being withdrawn from further consideration pursuant to 37 CFR 1.142(b) as being drawn to a nonelected invention, there being no allowable generic or linking claim. Election was made **without** traverse in Paper No. 4.

Claim Rejections - 35 USC § 112

3. The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

4. Claims 4-10 and 14-18 are rejected under 35 U.S.C. 112, first paragraph, as containing subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention.

In Claim 4, the recitation of "using balancing masses...between the tines" (lines 3-5) is new matter. The specification, as originally filed, does not provide support for the use of the balancing masses currently or simultaneously "while maintaining a balance in mass between the tines".

Furthermore in each of Claims 5 and 6, the active steps of “applying mass elements...the other” (lines 2-4 of Claim 5) and “adding mass elements...other tine” (lines 2-3 of Claim 6) is new matter. The application of these steps to “eliminate quadrature displacement in the tines” (lines 4-5 of Claim 4) concurrently or simultaneously “while maintaining a balance in mass between the tines” (line 5 of Claim 4) is not supported originally by the specification. The specification does not provide support for applying or adding mass elements from the front surface of one tine and from the rear surface of the other tine, simultaneously.

In Claim 7, the step of “adjusting the balancing masses on opposite sides of the two tines to eliminate quadrature displacement in the tines while maintaining a balance in mass between the tines” (lines 4-6) is new matter. The specification, as originally filed, does not provide support for adjusting balancing masses on tines simultaneously or concurrently, while maintaining a balance in mass between the tines.

The problems in Claim 7 similarly arise in each of Claims 14 and 16 with the limitations of “while maintaining a balance in mass between them” (last line of each claim).

5. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

6. Claims 4-10 and 12-18 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

In Claim 4, it unclear from the disclosure as to what is meant by the recitation of “using balancing masses...between the tines” (lines 3-5). How is it possible to use the balancing masses in such a way that the balance in mass between the tines is maintained at the same time?

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Furthermore in each of Claims 5 and 6, it is impossible to determine how “maintaining a balance in mass between the tines” (line 5 of Claim 4) occurs simultaneously with applying or adding mass elements and removing portions of mass elements from the front surface of one tine and from rear surface of the other time. Similar problems occur with each of Claims 7, 14 and 16.

Also, in each of Claims 5 and 6, the phrase “wherein quadrature displacement is eliminated and mass balance” (lines 1-2 of each) is unclear if this is referring to the previous recitation of “balancing masses” (line 3 of Claim 4) and “quadrature displacement” (lines 4-5 of Claim 4).

In Claim 8, it is unclear what the term “them” (line 2) is previously referring to, the balancing masses, or the tines?

In Claim 12, the phrase of “the step” (line 1) lacks positive antecedent basis.

In Claim 13, the phrase of “the steps” (line 1) lacks positive antecedent basis.

o. 11. In Claim 14, the phrase of “if necessary” (line 4) is unclear if the step of “trimming the balancing masses” (same line) is really even needed. Moreover, what is the term “them” (line 8) previously referring to?

In Claim 15, the phrase of “the step” (line 1) lacks positive antecedent basis.

In Claim 16, the phrase of “if necessary” (line 5) is unclear if the step of “trimming the balancing masses” (lines 4-5) is really even needed.

In Claim 17, the phrase of “the step” (line 1) lacks positive antecedent basis.

In Claim 18, the phrase of “the steps” (line 1) lacks positive antecedent basis.

Claim Rejections - 35 USC § 102

7. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

8. Claim 4, as best understood, is rejected under 35 U.S.C. 102(b) as being anticipated by Kawamura 3,760,482.

Kawamura discloses a method of manufacturing a tuning fork comprising: forming a pair of elongated tines 1, 1' which have front and rear surfaces; and using balancing masses 4, 4' (in Fig. 1) on the front and rear surfaces of each tine to eliminate quadrature displacement in the tines while maintaining a balance in mass between the tines (see examples in Figures 7-12). The mere operation of the tuning fork of Kawamura uses the balancing masses to simultaneously maintain a mass balance between the tines.

Claim Rejections - 35 USC § 103

9. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

10. Claims 11-13 are rejected under 35 U.S.C. 103(a) as being unpatentable over Macy et al, 4,930,351, referred to hereinafter as Macy'351 in view of Macy 5,542,249, referred to hereinafter as Macy'249.

Macy'351 (noting Figs. 1, 4 and 5) discloses a method of manufacturing a tuning fork comprising: forming a pair of drive tines 110, 112 having front and rear surfaces; forming a pair of pickup tines 160, 162 having front and rear surfaces; providing balancing masses (electrodes 200, 202, 204, 206, 210, 212, 214, 216) on the front and rear surfaces of the drive tines 110, 112 and providing balancing masses (electrodes 220, 222, 224, 226, 230, 232, 234, 236) on the front and rear surfaces of the pickup tines 160, 162; and adjusting the pairs of drive and pickup tines to reduce quadrature displacement (see col. 20, lines 9+ and col. 18, lines 6-10).

Macy'351 does not teach trimming the balancing masses on opposite sides, or on the same sides, of the drive tines to reduce quadrature displacement offset.

Macy'249 teaches the general concept of laser trimming balancing masses of electrode material located on any of the sides of each tine as a mechanical means to reduce quadrature offset error (see col. 7, line 34+). The benefit of this concept provides a more precise electrical null or reduction in quadrature displacement offset, as compared to the electrical means of reduction in quadrature offset error. The laser trimming of Macy'249 does not affect the mass balance of the drive tines because the material being trimmed is the balancing masses (electrodes) themselves and not the tine material.

It would have been obvious to one of ordinary skill in the art at the time the invention was made to have modified the method of Macy'351 by laser trimming the balancing masses on any of the sides of each tine, as taught by Macy'249, to mechanically and more precisely provide a reduction in quadrature displacement of the tuning fork.

Response to Arguments

11. Applicant's arguments filed on 1/22/02 (Paper No. 6) with respect to Claims 4-10 and 14-18 have been considered but are moot in view of the new ground(s) of rejection set forth above (Paragraphs 4, 6 and 8).

Applicant's arguments filed 1/22/02 (Paper No. 6) with respect to Claims 11-13 have been fully considered but have not been deemed to be found as persuasive.

In regards to the merits of Macy'351, applicants contend that Macy'351 does not teach elimination of quadrature displacement. The examiner most respectfully disagrees. Macy'351 solves the problems of eliminating offset error which is directly associated with eliminating the displacement of torsion (see col. 18, lines 6-10). The displacement of torsion is one example of "quadrature displacement". Accordingly, Macy'351 fully satisfies the limitations of eliminating "quadrature displacement".

Conclusion

12. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

13. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after

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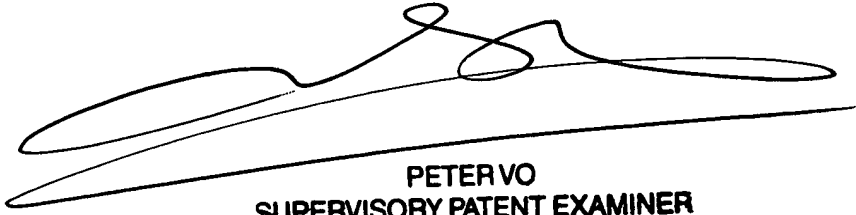
the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

14. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Dexter Tugbang whose telephone number is 703-308-7599. The examiner can normally be reached on Monday - Friday 9:00 am - 5:30 pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Peter Vo can be reached on 703-308-1789. The fax phone numbers for the organization where this application or proceeding is assigned are 703-305-3590 for regular communications and 703-305-3588 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703-308-0858.

adt
May 24, 2002



PETER VO
SUPERVISORY PATENT EXAMINER
TECHNOLOGY CENTER 3700